WEST Search History

09/383,889.

DATE: Friday, April 12, 2002

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT; PLUR=NO; OP=ADJ			
L18	l1 and l12	4	L18
L17	l3 same l7	32	L17
L16	l7 and l1	1	L16
L15	l12 and l1	4	L15
L14	L13 and l1	98	L14
L13	l3 same l6	6322	L13
L12	l3 same l4	20	L12
L11	l2 same l6	0	L11
L10	l2 same l3	0	L10
L9	L8 and l7	0	L9
L8	((707/101)!.CCLS.)	806	L8
L7	(low or high) adj1 entropy	143	L7
L6	decompression or decompressing	12448	L6
L5	coded adj1 instruction$1	777	L5
L4	schema	2478	L4
L3	(compressing or compression)	352356	L3
L2	transforming near7 schema	12	L2
L1	(707/100 OR 707/101 OR 707/102 OR 707/200).CCLS.	2815	L1

END OF SEARCH HISTORY

L15: Entry 2 of 4 File: USPT Oct 14, 1997

DOCUMENT-IDENTIFIER: US 5678043 A
TITLE: Data compression and encryption system and method representing records as differences between sorted domain ordinals that represent field values

Current US Original Classification (1):
707/101

CLAIMS:

1. A method for compressing a database consisting of a plurality of tuples, each tuple having predetermined fields arranged according to a predetermined schema, the method comprising:

mapping said tuples according to predetermined mapping rules such that said fields are mapped to domain ordinals representing field values to thereby define a plurality of domain ordinal tuples;

sorting said domain ordinal tuples according to predetermined sorting rules;

converting said domain ordinal tuples into a reference tuple and a table of difference values by subtracting a domain ordinal tuple from its succeeding neighbor;

defining a data block of a predetermined size and performing said converting step on groups of domain ordinal tuples to fit said defined data block size, wherein said predetermined size of said data block is determined to physically conform to the data block size of a storage system used to store said database;

storing said reference tuple and said table of difference values according to predetermined storing rules, the stored reference tuple and the stored table of difference values being a compressed representation of said database.

L17: Entry 5 of 32 File: USPT Sep 26, 2000

DOCUMENT-IDENTIFIER: US 6124811 A
TITLE: Real time algorithms and architectures for coding images compressed by DWT-based techniques

Brief Summary Paragraph Right (14):
When either of these techniques are utilized in the compression of images, the nature of the image compression prior to encoding scheme should point to the best choice of method. In order to consider whether Huffman Coding or run length coding should be used, the nature of the image or application (such as videoconferencing) may need to be analyzed and considered. For images with high entropy, run-length encoding may not provide as high a compression ratio as Huffman Coding and vice-a-versa. The inability to tune the binary encoding process to the characteristic of the data set (or subset of the data set), may result in overall compression ratios that are not optimal.

Brief Summary Paragraph Right (18):
Other primary image compression schemes which achieve high compression ratios and also acceptable decompressed image quality, may generate image "sub-bands" or image frequency regions, which unlike JPEG blocks, are not fixed but varying in size since they do not divide the image in blocks. One such primary image compression scheme based upon the Discrete Wavelet Transform (DWT) is presented in related U.S. patent application, Ser. No. 09/083,383, filed May 21, 1998, entitled "The Compression of Color Images Based on a 2-Dimensional DWT" (hereinafter "DWT Patent"). In such a DWT-based scheme, each sub-band and channel (color plane or difference of color planes) may have properties that justify the use of Huffman Coding rather than run-length encoding especially in sub-bands with high entropy.

Detailed Description Paragraph Right (53):
In another embodiment of the invention, the modified ZRLC encoding and adaptive encoding may be utilized to perform the compression of ordinary non-image data such as the compression of text files as well. Such data may be stored in a disk, memory 711 or other storage mechanism and can be compressed by virtue of being encoded adaptively. In such encoding of data, it may be possible to detect which portions of the data stream may be encoded using a modified ZRLC and which may be encoded using MHC. In data that contains a large number of consecutive zeroes, a modified ZRLC scheme that is capable of representing an arbitrarily large run-length value would be particularly efficient. In data that shows high entropy, MHC may be more suitable.

L17: Entry 7 of 32 File: USPT Apr 25, 2000

DOCUMENT-IDENTIFIER: US 6054943 A
TITLE: Multilevel digital information compression based on lawrence algorithm

Brief Summary Paragraph Right (90):
In "A New Universal Coding Scheme for the Binary Memoryless Source," Lawrence describes a variable-to-block scheme involving a random walk in Pascal's triangle starting at the apex and working its way down until a specially defined boundary is reached which terminates the coding process. The advantages of this scheme are that it is universal, asymptotically optimal in terms of Shannon's noiseless coding theorem and results in huge compression ratios for low entropy source runs similar to run length coding. The disadvantage is that it does not work with multilevel sources. Only black and white images such as fax would be considered binary sources. Hence Lawrence coding has had limited usefulness.

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L17: Entry 8 of 32 File: USPT Feb 29, 2000

DOCUMENT-IDENTIFIER: US 6031939 A
TITLE: Method of optimizing the compression of image data, with automatic selection of compression conditions

Detailed Description Paragraph Right (47):
From a point of view close to the image, a low entropy is characteristic of the fact that the pixels take a small number of values in the range [0,255]. This is in principle representative of the information contained in the image and of the difficulty of compressing it, in that if the pixels take a small number of values, variations of intensity should be relatively infrequent.

L17: Entry 12 of 32 File: USPT Jun 30, 1998

DOCUMENT-IDENTIFIER: US 5774597 A
TITLE: Image compression and decompression using overlapped cosine transforms

Detailed Description Paragraph Right (30):
The present invention provides for high compression ratios. The target compression ratio of typical X-ray images is between 10:1 and 20:1. While there is provision for higher compression ratios, the quality of the displayed images are degraded at higher ratios. The present invention provides for psycho physically-based quantization, wherein frequency dependent quantization is used in a manner similar to JPEG compression. The present invention provides for local adaptivity of quantization and/or source coding based on criteria determined by the designer. The present invention provides for efficient coding of low-entropy images. The mechanism for low entropy encoding may use variable length source words to encode strings of zeroes as in JPEG compression. The present invention provides for picture decomposition attributes, including overlapping basis functions and hierarchical decomposition, and the like. The image is decomposed into a high frequency imager and a downsampled low frequency image. The low frequency image may be used as a low resolution image in a segmented transmission scheme.

DOCUMENT-IDENTIFIER: US 5448642 A
TITLE: Method for coding low entrophy data

Brief Summary Paragraph Right (4):
In a distortionless source coding scheme, also known as data compression, data reduction is achieved by removing the redundancy in the data and efficiently representing the information with codewords. An optimal coding scheme will produce expected codeword length close to the information measure, that is, the entropy of the data source. It was known that the Huffman code is an optimal block code given a source with known statistics. For actual data sources, due to the varying statistics in the source, several Huffman codebooks will have to be used to optimally adapt to the source variation. R. F. Rice proposed in 1979 a scheme which effectively adapts to the source without the need of storing codebooks. This scheme includes an option, .psi..sub.0, to operate at low source information content. This option first generates the comma code of a block of samples, then groups every three bits and codes them with a Huffman code. Run-length code, followed by Huffman code, has been used in products like the fax machine at low source entropy rate. Another scheme with potential for coding at low entropy rate is the arithmetic codes.

Detailed Description Paragraph Right (4):
One generally accepted method of compressing electronic signals containing low entropy data is to remove the redundancy in the signals and represent the information within image 10 with codewords, such as obtained from Huffman coding technique. This type of coding works particularly well when the statistics of the signals can be predicted with relative certainty. As stated above, neighboring (or adjacent) pixels contain similar eight-bit information, therefore, the difference from one like pixel to the next like pixel, in terms of their signal value on a 256 graduated grey scale, is mostly zero. FIG. 3 shows a histogram of the expected difference, delta, between pixels of a low entropy image such as image 10. As can be seen from FIG. 3, the majority of delta's between pixels falls in the range of -3 to +3, with the highest probability delta being 0. Therefore, instead of storing or transmitting the entire electronic signal containing an eight-bit word for each pixel, it is possible to store or transmit only the delta between pixels and this delta could then be converted later back into the electronic signal containing the eight-bit word for each pixel. Although the delta resulting from taking the difference between the current pixel and the previous pixel will require an electronic signal containing a nine-bit word to account for the negative values of delta, there are only 256 permissible values out of the 512 possible values. In this invention, this nine-bit delta word is mapped to an eight-bit word using a known method. Then the eight-bit mapped delta is further coded to remove the redundancy. One method, well known in the prior art of coding an electronic signal containing an eight-bit word to a shorter word when the statistics are known is Huffman coding. Huffman coding maps the eight-bit delta to a shorter expected code word, e.g., two to four bits on the average. The problem with Huffman coding for signals containing low entropy, other than that it needs a code book for every changing statistics, is that the optimal Huffman code puts a lower bound of 1 bit/symbol on the expected codeword length of a block code. For signals with entropy lower than 1 bit/symbol, it is desirable to extend this lower bound of Huffman code below 1 bit. The present inventive method transforms the source data into a new symbol source before coding.

L17: Entry 23 of 32 File: USPT Dec 27, 1994

DOCUMENT-IDENTIFIER: US 5377018 A
TITLE: Video compression and decompression using block selection and subdivision

Detailed Description Paragraph Right (10):
Accordingly, each low entropy block is compressed into three 16-bit words: one mask word; one RGB high value word starting with a "0" bit BH0; and one RGB low value work starting with a "0" bit BL0. Three 16-bit words comprise a total of 48 bits. The uncompressed video data comprises three 8-bit words for each of sixteen pixels for a total of 384 bits. The presently described embodiment therefore results in 384/48 video data compression for low entropy blocks.

Detailed Description Paragraph Right (11):
If the block is determined to a high entropy block, however, compression is performed differently. The compression of a high entropy sub-block 16 will be described in connection with FIGS. 4 and 5. High entropy block 16 is divided into four sub-blocks SB0-SB3.

Detailed Description Paragraph Right (14):
Accordingly, each high entropy block is sub-divided and compressed into nine 16-bit words: one mask word; one RGB high value word starting with a "1" bit; and seven other RGB value words starting with "0". Nine 16-bit words comprise 144 bits. The uncompressed video data comprises three 8-bit words for each of sixteen pixels for a total of 384 bits. The presently described embodiment therefore results in 384/144 video data compression for high entropy blocks. Because the proportion of low entropy blocks to high entropy blocks can be modified by adjusting the predetermined entropy value, the amount of compression can be loosely controlled.